IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

TOMMY RAY MAYS II and QUINTON NELSON SR., individually and on behalf of all others similarly situated, Plaintiffs, v. FRANK LAROSE, in his official capacity as Secretary of State, Defendant.	Case No. 2:18-cv-1376 JUDGE MICHAEL H. WATSON Magistrate Judge Chelsey M. Vascura **CLASS ACTION**

DECLARATION OF MARK J. SALLING

I, Mark J. Salling, hereby declare as follows pursuant to 28 U.S.C. § 1746:

1. The testimony set forth in this Declaration is based on first-hand knowledge, about which I could and would testify competently in open Court if called upon to do so. This Declaration is submitted in support of Plaintiffs' Notice of Submission of Expert Testimony.

2. I am Senior Fellow and Research Associate at the Northern Ohio Data and Information Service (NODIS) and Maxine Goodman Levin College of Urban Affairs at Cleveland State University. I have been retained to provide expert testimony in the above-captioned action by counsel for Plaintiffs.

3. A true and correct copy of my report titled "Estimation of the Number of Registered Ohio Voters Prevented From Voting Because They Were Arrested After the Absentee Ballot Request Deadline and Detained Through General Elections in November 2012, 2014, 2016, and 2018" is attached herein as Exhibit 1.

I declare under penalty of perjury under the laws of the United States of America that the

foregoing is true and correct. Executed on April 12, 2019.

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Mark J. Salling

Estimation of the Number of Registered Ohio Voters Prevented From Voting Because They Were Arrested After the Absentee Ballot Request Deadline and Detained Through General Elections in November 2012, 2014, 2016, and 2018[1]

Mark Salling, PhD, GISP
Senior Fellow
Maxine Goodman Levin College of Urban Affairs
Cleveland State University

April 12, 2019

This report offers estimates of the number of jailed persons in Ohio who were registered to vote in the state, had not voted by absentee ballot, and could not exercise their voting rights because they were detained and confined after the absentee ballot request deadline and held through Election Day of the general elections in November 2012, 2014, 2016, and 2018.[2]

Methodology
The difficulty of acquiring data on the number of persons in jails statewide before the elections was prohibitive because that data needed to be gathered separately from each county. Therefore the analysis relies on drawing a sample from data collected in 13 counties in which sheriffs responded to a public records request for "the jail roster or other document showing the names, booking date, release date, and/or charges facing persons" housed in county jails between the absentee ballot request deadline and the general election date in November 2012, 2014, 2016, and 2018. The data provided by those 13 counties was compiled into a single database of incarcerated persons.[3] Those public records requests sought data on all inmates held on the weekend and day before the elections in all the 12 Hour, 12 Day, Minimum Security and Full Service Jails in the 13 counties. Data includes, where available, name, address, date of birth, booking date, and release date. Counts of these persons by county are shown in Table 1. As explained below, some of these persons may not have been registered to vote.

A second database containing national voter registration data and a matching algorithm were used to determine the likelihood that each person in the incarcerated database was registered to vote. The national voter registration data in the second database was comprised of voter rolls provided by the states, including the State of Ohio. The registered voter data also indicates whether the voter voted in

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[1] The analysis was requested by the Campaign Legal Center (CLC) and data on inmates used in the analysis were supplied by that organization.

[2] The 2018 population-based estimates are based on the 2017 estimates from the U.S. Census since 2018 estimates are not yet available. For years 2012, 2014 and 2016 these data are in table B05003; for 2017 the table is B29001. Available at https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

[3] The 13 counties that comprise the sample are Allen, Butler, Cuyahoga, Franklin, Hamilton, Lake, Lorain, Lucas, Mahoning, Montgomery, Richland, Stark, and Summit Counties. Those counties include the 11 largest counties in Ohio by population. Allen and Richland Counties were also included and increase the geographic diversity of the sample to include medium-sized counties in west-central and north-central Ohio, respectively.

2012, 2014, and 2016 general elections. Those persons were discarded from the analysis for those elections in which they so voted. There was no registered voter data in the database indicating who had voted in Ohio's November 2018 general election. I understand that this data was not available yet because of the proximity to that election. I applied the overall proportion of incarcerated persons from the previous three general elections in the study who were determined to have voted in those elections (13.283%) to adjust the 2018 samples and estimates.

Table 1: Sampled Counties

County	Allen	Butler	Cuyahoga	Franklin	Hamilton	Lake	Lorain	Lucas	Mahoning	Mont-gomery	Richland	Stark	Summit	Total
Count	112	405	325	580	401	99	133	150	138	243	92	219	234	**3,131**
Percent of Total	3.6	12.9	10.4	18.5	12.8	3.2	4.2	4.8	4.4	7.8	2.9	7.0	7.5	**100.0**

Once a selection (sample) of likely eligible voters was made using the qualifications above and the matching algorithm, the analysis used two estimation methods to reach an estimated total of statewide jailed voters for each election who were not able to vote due to their detention. First we summed them by county and then calculated their proportion of the counties' total voting age population in the counties in which the sample was drawn. That proportion was applied to the state's total voting age population in each election year to yield an estimate of the number of persons in the state's voting age population that were unable to vote due to incarceration. This method assumes that the statewide number of such eligible voters is proportional to their share of the population in the sampled counties. The second method incorporates a database on the incarcerated population in Ohio (i.e., the annual institutional population census from the Ohio Department of Rehabilitation and Correction) and uses the proportion of institutional population in counties with sampled eligible but incarcerated voters to the state's total institutional population to reach a statewide estimate.

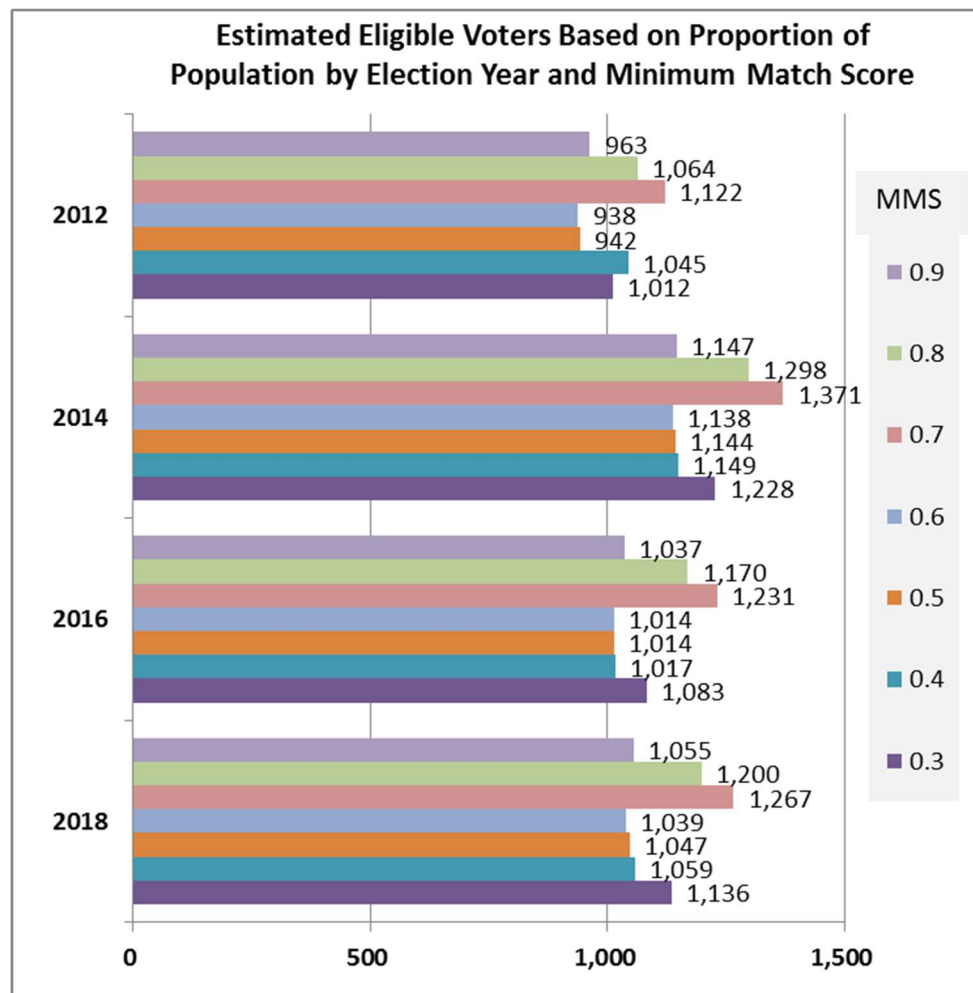**Identification of Inmates and their Eligibility to Vote While Incarcerated**
The study covers November general elections in 2012, 2014, 2016, and 2018. It identifies inmates who were arrested after the absentee ballot request deadline (6:00pm the Friday before an election) and incarcerated in a jail the time of their arrest through the Tuesday election. The selection of such persons for the analysis uses a score indicating whether they were likely registered to vote at the time of their incarceration. The scores are based on matching inmates identified in booking records provided by the counties to persons identified in a national database of registered voters, which includes data from the State of Ohio. Matching is based on an algorithm that incorporates factors such as names, age, and address. Scores range from 0 to 1.0, with higher scores indicating a higher likelihood that the person in the national database of registered voters is the same one in the database of incarcerated persons. [4]

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[4] The data in the national database of registered voters was made available to CLC by The Movement Cooperative (TMC), an organization that provides data consulting resources to non-profit organizations. I understand that CLC provided TMC with booking data from the Ohio counties, and TMC used its algorithm to generate a match score between the booking data and voter data. Data on incarcerated inmates and the match scores and related voter data from TMC were provided to the author by CLC, along with a description of their contents.

Statewide Estimate Results: Proportion of Population Method

The supplier of the national registered voter database suggested that a minimum match score of 0.4 provides an industry standard of reliability that records match successfully, in this case that the jailed person is the same one found in the registered voter file. In order to be more comprehensive in the analysis I show the results of using seven minimum match scores from 0.3 to 0.9 in 0.1 increments. Figure 1 shows the results using the method which I call the "population proportion" method.

Figure 1: Estimated Eligible Incarcerated Voters Based on Proportion of Population by Minimum Match Score

For the 2018 general election, the recommended threshold of 0.4 produces a sample of an estimated 639 incarcerated persons from ten counties and a statewide estimate of 1,136 eligible voters who were unable to cast a ballot due to incarceration after the absentee ballot request deadline and through the election (Figure 2). With a more conservative minimum match score of 0.5, there are an estimated 497 matched jailed persons from ten counties, with a statewide estimate of 1,047. Thus there is a trade-off of higher minimum match score with fewer sampled persons. The most conservative match score threshold – 0.9 – provides 342 estimated sampled persons in seven counties with a statewide estimate

of 1,055 individuals who could not vote in the 2018 general election because they were incarcerated after the absentee ballot request deadline for the election and detained through Election Day. Averaging the results from all seven threshold estimates, the average estimate for the state total is 967, with a range of 228 and a standard deviation of 82.6. Overall, there is much consistency in the estimate regardless of what threshold score is used.

Similar findings are evident for the three earlier studied general elections but with fewer persons unable to vote in each earlier election.

Figure 3 provides the average sampled and statewide estimated numbers of eligible voters incarcerated after the absentee ballot request deadline for the election and detained through Election Day in November 2012, 2014, 2016, and 2018 based on the proportion of population method and using all minimum match scores from 0.3 to 0.9.

Figure 2: Sample and Estimates of Eligible Incarcerated Voters Statewide in 2018 Based on Proportion of Population by Minimum Match Score
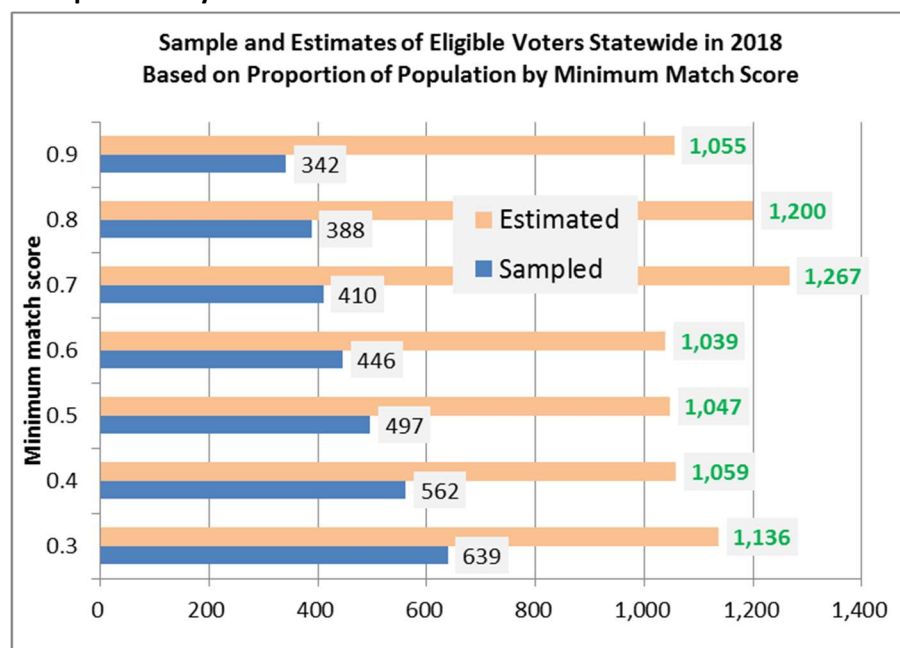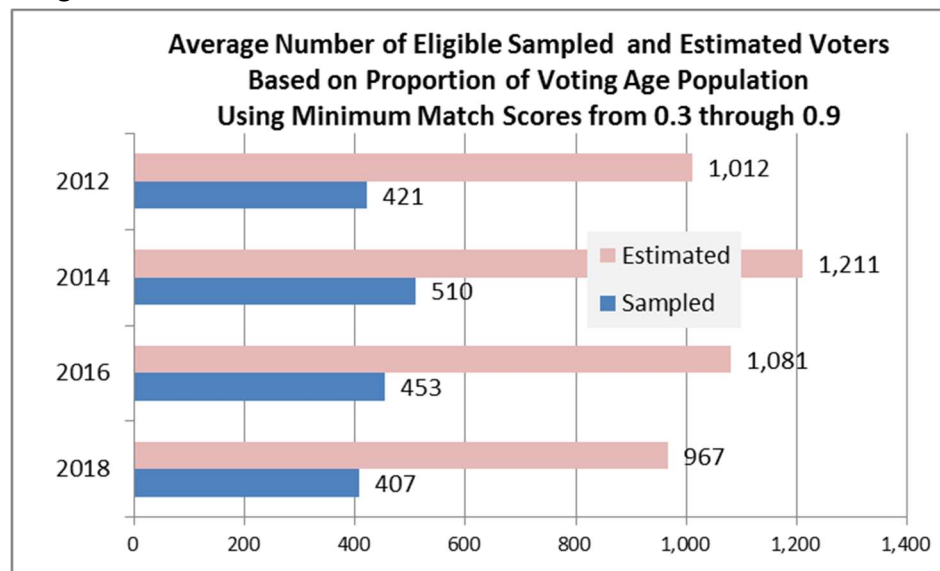

Sample and Estimates of Eligible Voters Statewide in 2018 Based on Proportion of Population by Minimum Match Score

Figure 3: Average Sampled and Estimated Incarcerated Voters Based on Proportion of Population Over Range of Match Scores

Statewide Estimate Results: Proportion of Institutional Population Method

As another approach to reach a statewide estimation based on data from a sample set of counties, we acquired data from the 2012, 2014, 2016, and 2018 January inventories by the Department of Rehabilitation and Correction on the number of prisoners in all state institutions by county.[5]   Similar to what was done using voting age population, the proportion of sampled voting-eligible incarcerated persons in jail the weekend before the election in each county in which they were incarcerated was applied to the state's total institutional population. This was done for the general elections in 2012, 2014, 2016, and 2018. Figure 4 presents the estimates for minimum match scores ranging from 0.3 through 0.9 in 0.1 increments. This estimation method, which I call the "proportion of institutional population" method, yields estimates that suggest that the number of eligible voters detained and held in detention after the absentee ballot request deadline and through Election Day is relatively consistent over the period of studied elections almost regardless of the minimum match score used.

Figure 5 shows the resulting estimates for the 2018 election and the seven minimum match scores. The most conservative minimum match score (0.9) produces a statewide estimate of 903, while the more inclusive score of 0.3 provides an estimate of 1,022. The recommended score of 0.4 provides an estimate of 941 and a 0.5 threshold yields the largest estimate at 1,022. The average estimate based on minimum match scores of 0.3 and above is 932, with a range of 119 and a standard deviation of 39.4. As found with the proportion of population based estimates, there is much consistency in the estimates regardless of what threshold score is used.

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[5] See "Institution Census Reports" at https://drc.ohio.gov/reports/institution-census.

Averages of sampled and estimated persons unable to vote due to incarceration after the absentee ballot request deadline and held through Election Day based on the proportion of institutional population method are found in Figure 6.

Figure 4: Estimated Eligible Incarcerated Voters Based on Proportion of Institutional Population by Minimum Match Score
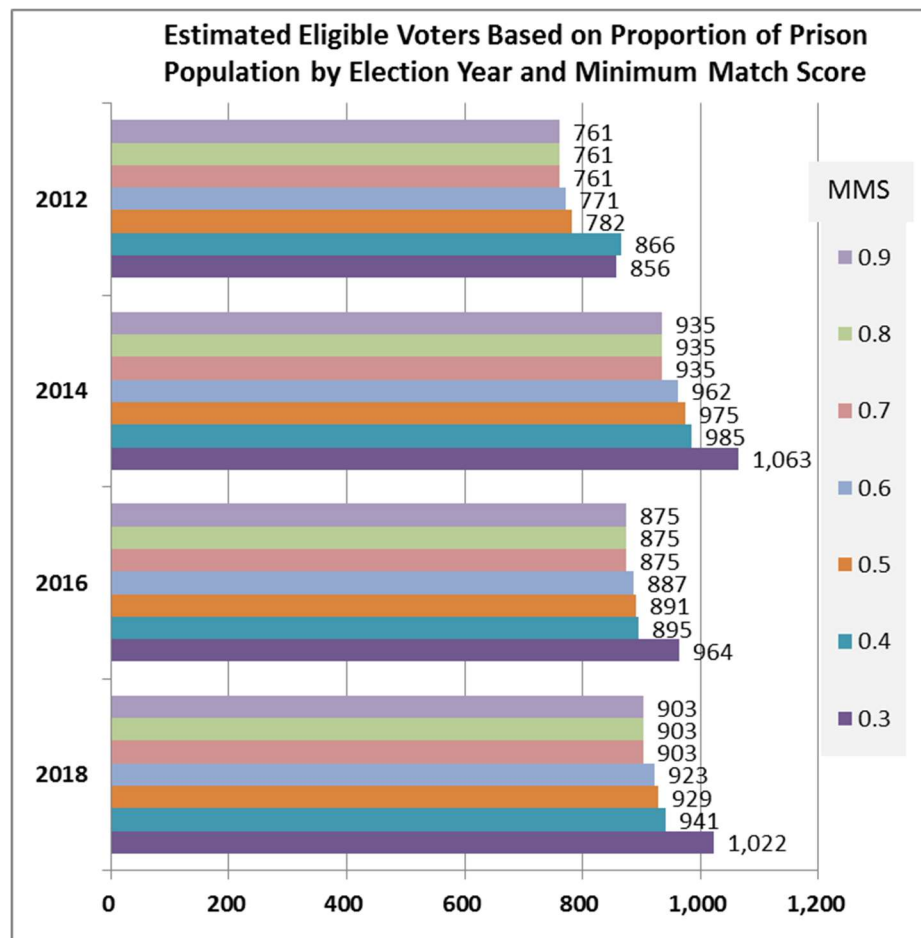

Estimated Eligible Voters Based on Proportion of Prison Population by Election Year and Minimum Match Score

2012: 761, 761, 761, 771, 782, 866, 856
2014: 935, 935, 935, 962, 975, 985, 1,063
2016: 875, 875, 875, 887, 891, 895, 964
2018: 903, 903, 903, 923, 929, 941, 1,022

MMS: 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3

Figure 5: Sample and Estimates of Eligible Voters Statewide in 2018 Based on Proportion of Institutional Population by Minimum Match Score
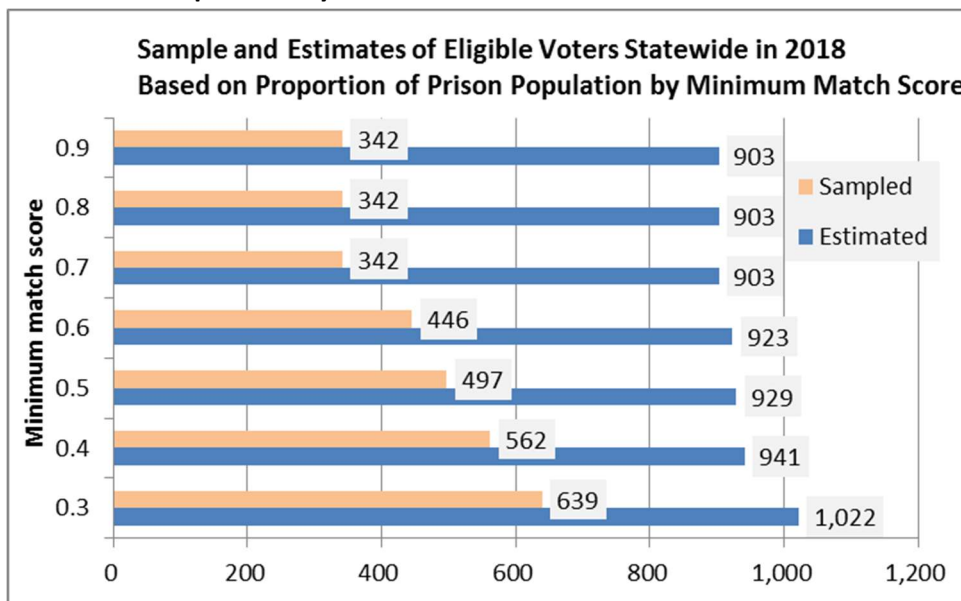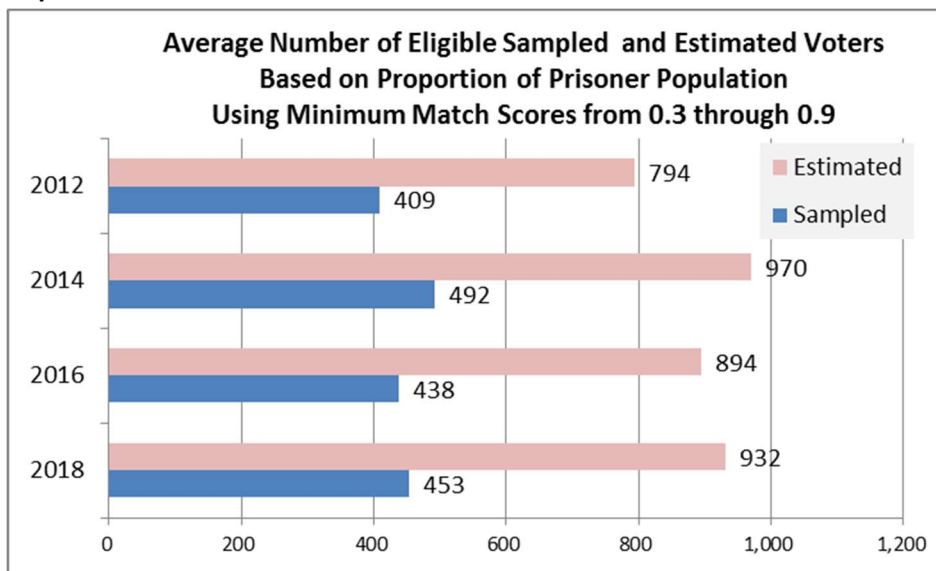

Sample and Estimates of Eligible Voters Statewide in 2018
Based on Proportion of Prison Population by Minimum Match Score

Figure 6: Average Sampled and Estimated Incarcerated Voters Based on Proportion of Prisoner Population

Average Number of Eligible Sampled and Estimated Voters
Based on Proportion of Prisoner Population
Using Minimum Match Scores from 0.3 through 0.9

Conclusions

This analysis examined the number of Ohio's registered voters who (1) were detained after the absentee ballot request deadlines in the November 2012, 2014, 2016, and 2018 general elections and held through Election Day and (2) did not vote in the election during the time of which they were incarcerated. Regardless of the method and the minimum match score employed, the estimated number of such registered voters who were unable to vote is substantial, ranging from a very conservative low of 761 in 2012 to a still-conservative high of 1371 in 2018 using a minimum match

score of 0.7. Using the prisoner proportion method there is an estimated average of 1,068 persons unable to vote each general election. The average using the institutional population method is 898 such persons. In conclusion it is relatively safe to say that there are about 1,000 persons who were unable to vote as a result of being detained after the absentee ballot request deadline and held through Election Day, in each of the last four federal general elections.

Appendix to (1) "**Estimation of the Number of Registered Ohio Voters Prevented From Voting Because They Were Arrested After the Absentee Ballot Request Deadline and Detained Through General Elections in November 2012, 2014, 2016, and 2018**" **and (2) Analysis of the Proximity of Jails and Hospitals to County Boards of Elections in Ohio**

Appendix A: CV of Dr. Mark J. Salling, PhD, GISP

Appendix B: Testimony, Depositions, and Affidavits of Dr. Mark J. Salling, PhD, GISP

Appendix C: Salling Compensation Agreement

Appendix A

MARK J. SALLING, Ph.D., GISP[1]
November 1, 2018

EDUCATION
Ph.D. (Geography) 1982, Kent State University
    Dissertation: Poverty and the Decision to Move: An Analysis of Public Housing for the Poor
M.A. (Geography) 1974, University of Cincinnati
B.A. (Geography) 1970, Kent State University

ACADEMIC & PROFESSIONAL POSITIONS
1982-present--- Director, Northern Ohio Data & Information Service, Senior Research Associate, and College Fellow, Maxine Goodman Levin College of Urban Affairs, Cleveland State University (http://urban.csuohio.edu/nodis/)
2002-2012 Williamson Family Fellow and Director of Research, The Center for Community Solutions, Cleveland, OH (http://communitysolutions.com/)
1981-1982----- Director, Base Resource Division, Graphco, Cleveland, OH.
1979-1982----- Research Consultant/Methods & Data Specialist, Capone-White & Associates, Cleveland Heights, OH.
1976-1981----- Planner and Senior Data Specialist, Northeast Ohio Areawide Planning Agency, Cleveland, OH.
1976------------- Planning Assistant, Medina County Planning Commission, Medina, OH.
1976------------- Temporary Instructor, Geography, Kent State University, Trumbull Branch.
1975-1976----- Teaching Fellow, Department of Geography, Kent State University.

PROFESSIONAL AFFILIATIONS, AWARDS, SERVICE
Urban & Regional Information Systems Association (URISA - http://www.urisa.org/):
- Managing Editor, Proceedings of the annual conference 1986-2004.
- Past member, URISA Board of Directors, 2002-2005
- Past Member, Core Committee, GISCorps (http://www.giscorps.org/)
- Recipient, URISA 1988 and 2000 Service Awards
Member, Ohio Geographically Referenced Information Program Council, representing universities (http://ogrip.oit.ohio.gov/)
Ohio's past Liaison to the U.S. Census Bureau's Redistricting Data Program
Chairman and Key Person, Cleveland Census Statistical Areas Committee (CenSAC)
Member, Association of Public Data Users (APDU - http://apdu.org/)
Past Recipient, Visiting Fellowship, National Center for Geographic Information and Analysis (NCGIA), 1994.
Affiliated Scholar, Center for Election Integrity, Cleveland State University (http://urban.csuohio.edu/cei)
Member of the test question review team of the Geographic Information Systems Professional Certification Institute (GISCI) - https://www.gisci.org/

PRIMARY AREAS OF RESEARCH AND TEACHING EXPERIENCE

Urban Social Geography	Research/Computer Methods
Urban Poverty, Mobility	Geographic Information Systems (GIS)
Demography	Demographic Forecasting
Redistricting	

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[1] Geographic Information System Professional, certified by the GIS Certification Institute (http://www.gisci.org/).

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NODIS DIRECTOR RESPONSIBILITIES

Management- staff consisting of professional programmers, researchers, GIS specialists, information specialist, and several students; provide research, data, and GIS services to University and community data users.

Teaching------ courses taught: Urban Spatial Structure, Urban Geography, Graduate Research Methods, Introduction to Geographic Information Systems, GIS Capstone Seminar, Demography, and Computers for Urban Studies Students.

Research----- demographic and urban analysis; research includes analyses of redistricting outcomes and the use of GIS in the process, urban neighborhood economic structure, environmental equity (spatial association of toxic releases and demographic populations), the application of GIS to urban land redevelopment, and the use of GIS for social indicators and related areas.

Technical Assistance---- presentations on GIS, demographic trends, urban issues; employed GIS methods to provide a common database for redistricting in the State of Ohio; provide leadership in local Census data and geography issues.

PUBLICATIONS

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Salling, Mark, "Change in Persons with Health Insurance Before and After the Affordable Care Act: The State of Ohio", *Focus on Facts*, Maxine Goodman Levin College of Urban Affairs, Cleveland State University, June 2017, No.3.

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Salling, Mark, "The Vote for Trump/Pence in Cuyahoga County, by Race/Ethnicity and Educational Attainment", *Focus on Facts*, Maxine Goodman Levin College of Urban Affairs, Cleveland State University, November 2016.

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Norman Robbins and Mark **Salling**, "Racial and Ethnic Proportions of Early In-person Voting in Cuyahoga County, General Election 2008, and Implications for 2012," Northeast Ohio Voter Advocates, July 2012.

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James Wyles and Mark **Salling**, "Districting Competition Tutorial Using ArcGIS 9.3 and Districting Wizard," Prepared for Ohio Secretary of State Jennifer Brunner, http://www.sos.state.oh.us/SOS/Upload/redistrict/tutorial.pdf, April 2009.

Mark **Salling**, Joe Ahern, George Coulter, and Rich Marountas, "New Study Shows County's Workforce Characteristics," Planning & Action, The Center for Community Solutions, Vol. 62, No. 1 (February), 2009, pp. 7-11.

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Mark **Salling**, "Brief Description and Analysis of the Census Bureau's
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Salling, Mark, and M.E. Harvey, "Poverty, Personality, and Sensitivity to Residential Stressors," Environment and Behavior, Vol. 13, No. 2 (March), 1981, pp.131-163.

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"Some Thoughts about Equity and Social Justice for GISP Professionals", presented at GIS-Pro 2018, the annual conference of the Urban and Regional Information Systems Association, Palm Springs, CA., October 11, 2018.

"Changes in the Geographic Distribution of the Need for Food/Meal Services in Cuyahoga County, Ohio", presented at GIS-Pro 2018, the annual conference of the Urban and Regional Information Systems Association, Palm Springs, CA., October 11, 2018.

"Boundaries that Matter: Redistricting Congressional Election Districts", Presented to the Lake County League of Women Voters, Mentor, Ohio, January 17, 2018.

"Metropolitan spatial patterns of firm locations as a self-organizing system over time", presented at GIS-Pro 2017, the annual conference of the Urban and Regional Information Systems Association, Jacksonville, FL., October 25, 2017.

"Opioid Deaths and the Availability of Rehab Beds In Facilities Serving Persons with Addictions" Presented at the Northeast Ohio GIS Symposium, Cleveland, Ohio, August 31, 2017.

"Metropolitan spatial patterns of firm locations as a self-organizing system over time: An empirical evaluation in Cleveland–Akron-Elyria, Ohio CSA", with Sanda Kaufman and Miron Kaufman, presented to the 47th Annual Conference of the Urban Affairs Association, Minneapolis, Minnesota, April 21, 2017.

"Boundaries That Matter: Redistricting Congressional Election Districts'", with Paul Moke, presented to First Unitarian Church of Cleveland, Shaker heights, Ohio, February 26, 2017.

"Why We Should Know and Care About the Census Bureau's Redistricting Data Program", presented at GIS-Pro 2016, the annual conference of the Urban and Regional Information Systems Association, Toronto, Canada, November 1, 2016.

"GISCorps: GIS Professionals Volunteering for Communities in Need", presented at the 2015 Levin College Research Conference, Cleveland, Ohio, August 20, 2015.

"Racially and Socioeconomically Disparate Impacts of Relocating the Hamilton County, Ohio Board of Elections'" presented at GIS-Pro 2013, the annual conference of the Urban and Regional Information Systems Association, New Orleans, LA., September 10, 2014.

"Use of GIS to Analyze Impacts of Relocating Hamilton County, Ohio Board of Elections", presented at the Northeast Ohio Regional GIS Symposium – 2014, Cuyahoga Heights, Ohio, August 28, 2014.

"Community Mapping Initiatives in Cleveland, Ohio," presented with Wansoo Im at GIS-Pro 2013, the annual conference of the Urban and Regional Information Systems Association, Providence, RI, September 17, 2013.

"Urban Geography 101: What do you know about Cleveland and the Region?" presented at the Community Forum of First Unitarian Church of Cleveland, Shaker Heights, Ohio, March 3, 2013.

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"GIS and Democracy, How GIS Affects the Political Landscape," presented at GIS-Pro 2012, the annual conference of the Urban and Regional Information Systems Association, Portland, OR, October 2, 2012.

"Some Data on Representational Fairness, One Person, One Vote, and Public Participation Redistricting," presented at the Symposium on Baker v. Carr After 50 Years: Appraising the Reapportionment Revolution, Case Western Reserve University School of Law, Cleveland, Ohio, November 4, 2011

"Putting Artists on the Map: A Study of Artists' Housing and Neighborhoods in Cuyahoga County, Ohio," with Kristin L. Tarajack-Puch, presented at the Urban Affairs Association annual conference. New Orleans, LA., March 19, 2011.

"How Will Geographic Information Systems be Used for Redistricting: A Case Study in Ohio," presented at presented at GIS-Pro 2010, the annual conference of the Urban and Regional Information Systems Association, Orlando, FL, September 29, 2010.

"An Analysis of Health Disparities in Northeast Ohio Using the 2008 Ohio Family Health Survey," with Joseph Ahern and Terese Lenahan. presented at presented at GIS-Pro 2010, the annual conference of the Urban and Regional Information Systems Association, Orlando, FL, September 29, 2010.

"Anticipating Census 2010…Some Data on Population Change Affecting Redistricting in Ohio." presented at the "Redistricting Forum Redrawing the Boundaries: An Ohio Discussion," March 1, 2010. Columbus, Ohio.

"The Uses of Geographic Information Systems for Redistricting and a Case Study in Ohio," presented at the "Symposium on Drawing Lines: The Future of Redistricting in America," February 26, 2010. Duke University School of Law, Durham, NC.

"The 2008 Ohio Family Health Survey: Initial Analyses of Cuyahoga County," with Joe Ahern, presented to the Community Partners and Friends of The Center for Community Solutions, Cleveland, Ohio, July 15, 2009.

"The 2008 Ohio Family Health Survey: Initial Analyses of Ohio and Cuyahoga, Lorain, and Summit Counties," with Timothy Sahr, Heather Beaird, and Joe Ahern, presented to the Summit County Healthy Connections Network, Akron, Ohio, April 23, 2009.

"Ohio Redistricting Competition: Competition Rules and Scoring," with James Wyles, presented for Ohio Secretary of State Jennifer Brunner's Districting Competition, Columbus, Ohio, April 10, 2009.

"2008 Ohio Family Health Survey: Profile of the Uninsured in Cuyahoga, Lorain, and Summit Counties," with Joe Ahern, presented to The Center for Community Solutions Human Services Institute, Cleveland, Ohio, March 13, 2009.

"Using Social Indicators and Related Data for Grant Applications," presented to The Center for Community Solutions Human Services Institute, Cleveland, Ohio, March 13, 2009.

"Challenges Related to Multiple Estimates of the Census Bureau's American Community Survey," presented at the 2009 annual conference of the National Association of Planning Councils, Austin Texas, March 2, 2009.

"Cuyahoga County Workforce Indicators," with Joe Ahern and George Coulter, presented to The Center for Community Solutions - Partners and Friends, Cleveland, Ohio, February 27, 2009.

"The Point of Partnering? Achieving Service Outcomes through Agency Collaboration," annual conference of The Center for Community Solutions' Human Services Institute, Cleveland, Ohio, March 28, 2008.

"Income of Older Persons in Ohio," Ohio AARP Conference on Sensible Solutions for Retirement Security: A Public Policy Discussion, New Philadelphia, Ohio, March 20, 2008.

"Some Recent Data on the Economic Health of the Region," with George Zeller, Partners and Friends of The Center for Community Solutions, Cleveland, Ohio, November 15, 2007.

"Some Recent Data on the Economic Outlook for Cuyahoga County Based on the American Community Survey," presented to Cuyahoga County Commissioners and department heads, Cleveland, Ohio, September 19, 2008.

"Implications of Geocoding Methods, Geographic Reference Files, And Population Estimates for Community Health Indicators," with Chris Kippes, David Bruckman, Ellen Cyran, and Urban and Elizabeth Larkin, Centers for Disease Control and Prevention 2007 Assessment Initiative Annual Conference, Atlanta, Georga, August 23, 2007.

"Implications of Geocoding Methods, Geographic Reference Files, And Population Estimates for Community Health Indicators," with Chris Kippes, David Bruckman, Ellen Cyran, and Urban and Elizabeth Larkin, Urban and Regional Information Systems Association conference on GIS in Public Health, New Orleans, Louisiana, May 21, 2007.

"Foreign Migration: What Census Data Tell Us," annual conference of The Center for Community Solutions' Human Services Institute, Cleveland, Ohio, March 23, 2007.

"GIS as a Tool for Political Geography and Analysis," Conference on Computer-Assisted Reporting, Cleveland, Ohio, March 9, 2007.

"What We Are Learning from Recent Census Data," with Michael Finney, New Member Orientation, Ohio Legislative Service Commission, Columbus, Ohio, November 29, 2006.

"Sprawl, Taxes and the Cost of Ohio's Competitiveness," presented to New Member Orientation, Ohio Legislative Service Commission, Columbus, Ohio, November 29, 2006.

"Using the Census Bureau's Public Use Microdata for Migration Analysis," with Ellen Cyran, annual conference of the Urban and Regional Information Systems Association, Vancouver, BC, Canada, September, 2006.

"The Use of Geographic Information Systems (GIS) to Reveal Inordinate Public Health Burden in Cleveland's African American Neighborhoods," with C.M. Croner, T.L. Lenahan, G.D. Weiner, and C. Kippes, American Public Health Association 133rd Annual Meeting, Philadelphia PA., December 13, 2005.

"The Use of GIS for Social and Health Community Indicators," presented at the annual conference of the Urban and Regional Information Systems Association, Kansas City, Missouri, October, 2005.

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"The Public Health Burden of Cleveland's African American Community," with C.M. Croner, and T.L. Lenahan Annual Meeting of the Association of American Geographers, Denver CO., April 6, 2005.

 "What Have We Learned about Ohio from Recent Census Data?," with Michael Finney, presented to the New Member Orientation of the Ohio Legislature, Columbus, Ohio, November 17, 2004.

"Ecological Quality of Urban Streams: Resolving Multiple Dimensions of Urbanization," with B.M. Walton and J. Wolin. Symposium on Great Lakes Water Quality, Headwater Streams Section. Cleveland Museum of Natural History. October 2004.

"Updating the Census Bureau's School District Boundaries Using Geocoded Voter Registration Addresses," presented to the 2004 Ohio GIS Conference, Columbus, Ohio, September 30. 2004.

"Social Indicators Data for Community Development Corporations," workshop presentation at the Ohio CDC Association, 2004 annual conference, Cleveland, Ohio. September 29, 2004.

"Visualizing Health Inequalities with GIS: Exploring Geospatial Issues with IHS Area Planning Officers and Statisticians," with C.M. Croner, D. Taylor, T.L. Lenahan, and E. Arias DHHS Indian Health Service Area Planning Officers/Statisticians Conference, Washington, D.C., September 23, 2004.

 "Geographic Information Systems: Revealing Public Health Inequalities in African American Communities," with C.M. Croner, T.L. Lenahan, and G.D. Weiner, 1st Annual Conference on Race, Ethnicity and Place, Howard University, Washington D.C., September 17, 2004.

 "Using Social Indicators for Grantmaking," with Edwin Balzerzak, workshop sponsored by the Ohio Grantmakers Forum, Cleveland, Ohio. September 28, 2004.

 "Geographic Information Systems and Public Health: Accomplishments and Horizons," with C.M. Croner, T.L. Lenahan, and G.D. Weiner, GeoHealth 2004: Surveillance and Intervention, Wellington, New Zealand, November 23-25, 2004.

"Geographic Information Systems: Revealing Public Health Inequalities in African American Communities," with C.M. Croner, T.L. Lenahan, 1st Annual Conference on Race, Ethnicity and Place, Howard University, Washington D.C. September 17, 2004.

"Geographic Information Systems and African American Health: Visualizing Disease Burden," with C.M. Croner, T.L. Lenahan, E. Cyran, B. McNamara, L. Malakar, C. Kippes, and R. Marountas, 21st Annual Historical Black Colleges and Universities Summer Faculty GIS Workshop, National Capital Planning Commission, Washington, D.C., July 21, 2004.

"Assessing Biological Integrity within Substantially Urbanized Catchments," with B. M. Walton and J. Wolin, presented at the Symposium on Urbanization and Stream Ecology, Melbourne, Australia. December, 2003.

"Sacred Landmarks as a Resource for Community Empowerment and Regional Development," presented at the annual conference of the Urban and Regional Information Systems Association, Atlanta, Georgia. October, 2003.

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"Using Geographic Information Systems to Target Elevated Lead Blood Levels in Children," presented at the annual conference of the Urban and Regional Information Systems Association, Atlanta, Georgia. October, 2003.

"GIS Certification: A Status Report," presented to the 2003 Ohio GIS Conference, Columbus, Ohio. September 18. 2003.

"Some Thoughts on Social Indicators," presented to the National Association of Planning Councils, Monterey, California. May 10, 2003.

"Census 2000: Good News for Northeast Ohio's Economy?," presented at the Census 2003 Forum, Maxine Goodman Levin College of Urban Affairs, Cleveland State University, Cleveland, Ohio. May 2, 2003.

 "Race, Hispanic/Latino Ethnicity, Ancestry, and the Foreign-born Population, Some Demographic Data from the Census," presented to the 2003 Health and Human Services Institute, Federation for Community Planning, Cleveland, Ohio. March 21, 2003.

"Changing Demography of Ohio's House Districts," with Mittie Olion Chandler, presented to the Ohio Urban University Program Annual Forum, Columbus, Ohio. March 27, 2003.

"Demographic Change in Ohio: What Have We Learned for the 2000 Census?," with Michael Finney, presented to the New Member Orientation of the Ohio Legislature, Columbus, Ohio. October 18, 2002.

"Application of Geographic Information Systems and a Street-length-based Estimation Methodology to Develop a Redistricting Database," presented to the annual conference of the Urban and Regional Information Systems Association, Long Beach, California. October 2001.

"Use of Geographic Information Systems in the Analysis and Reporting of Child Mortality Statistics," with Cindie Carroll-Pankhurst, presented to the National Conference of County Boards of Health, Cleveland, Ohio. July 2001.

"GIS Customization of a Water Distribution Model Application for Hydraulic Modeling," with Ellen Cyran, Lindle Wilnow, and Pierre Haddad, presented at the conference on Public Works/Geographic Information Systems, Chicago, Illinois. May 7, 2001.

"What Can the 2000 Census Tell You About Your Community?," presented to The Neighborhood & Community Press Association (NCPA) of Greater Cleveland, Cleveland, Ohio. April 28, 2001.

"Using Geographic Information Systems for Community Economic Development," presented at the Emerging Leadership conference of the National Coalition of Community Economic Development, Washington, D.C. February 18, 2001.

"Demographic Trends and Patterns in Ohio," presented to the New Member Orientation Program of the Ohio General Assembly, Columbus, Ohio. November 28, 2000.

"Geographic Information Systems," in "Electronic Records: Access and Use" panel discussion at Midwest Archives and Mid-Atlantic Regional Archives Conference, Cleveland, Ohio. October 21, 2000.

"A Progress Report on Using Geographic information Systems to Prepare for Elections in the 21st Century," presented at the Ohio GIS annual conference, Columbus, Ohio. October 28, 1999.

"Modeling Neighborhood Economic Transformation," presented at the annual conference of the Urban and Regional Information Systems Association, Chicago, Illinois. August 11, 1999.

"Using Geographic information Systems to Prepare for Elections in the 21st Century," presented at the GIS/LIS annual conference, Cincinnati, Ohio. November 29, 1997.

"Applying Geographical Information Systems (GIS) Technology in Devising Effective Student Recruitment Strategies," panel at the 36th annual forum of the Association for Institutional Research, Albuquerque, New Mexico. May 6, 1996.

"Development of an Implementation Plan for Sharing Geographic Information in Greater Cleveland," presented to the Applied Geography Conference, Akron, Ohio. October 14, 1994.

"Using GIS to Make Micro-Level Real Estate Decisions: A Financial and Environmental Analysis of Residential Lot Redevelopment in a Cleveland Neighborhood," with Robert Simons, presented at the annual conference of the Urban and Regional Information Systems Association, Milwaukee, Wisconsin. August 11, 1994.

"Census 2000: Saving the Data - For Whom?" presented at the annual conference of the Urban and Regional Information Systems Association, Atlanta, Georgia. July 26, 1993.

"The Geography of Environmental Equity in Ohio: A Descriptive Analysis," with W. Bowen, presented at the annual conference of the Association of American Geographers, Atlanta, Georgia. April 9, 1993.

"The Geography of Environmental Disadvantage in Cuyahoga County, Ohio: A Descriptive Analysis," with W. Bowen, presented at the annual conference of the East Lakes Region of the Association of American Geographers, Youngstown, Ohio. November 2, 1991.

"NORGIN: Development of a GIS Project in the Cleveland Area," presented to the AM/FM-IKO & URISA Great Lakes Conference, Columbus, Ohio. June, 1991.

"Implementing A Departmental Computing System for Novice, PC, and Mainframe Users," presented to the annual conference of the Urban and Regional Information Systems Association, Ft. Lauderdale, Florida. August, 1987.

"A Method for Projecting Population for Census Tracts in a Declining City," presented to the annual conference of the Urban and Regional Information Association, Ft. Lauderdale, Florida. August, 1987.

"Developing an Arson Early Warning System from Public Records," presented to the annual conference of the Urban and Regional Information Systems Association, Ottawa, Ontario. July 1985.

"Dissemination of a Dynamic Database in Cleveland, Ohio," presented to the annual conference of the Urban and Regional Information Systems Association, Seattle, Washington. August, 1984.

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"Development and Application of a Research-Oriented Geographic Information System," presented to the annual conference of the Urban and Regional Information Association, Seattle, Washington. August, 1984.

"NODIS Procedures for Demographic Analysis," with J. Tobin, presented to SAS User's Group International, Hollywood, Florida. March, 1984.

"From Arson To Enterprise Zones: Applications of a Cleveland Based Geographic Information System," presented to the Applied Geography Conference, Toronto, Ontario. March, 1983.

"Home Mortgage Investment Patterns in the Cleveland Region," with T. Bier, presented to the Applied Geography Conference, Binghamton, New York. Fall 1979.

"Poverty, Personality, and Residential Mobility," presented to the East Lakes Meetings of the Association of American Geographers, Ann Arbor, Michigan. October, 1976.

"Residential Preferences in Three Neighborhoods of Different Racial Composition," presented to the East Lakes Meetings of the Association of American Geographers, Saint Catherine, Ontario. October, 1975.

"The Direction of Urban Transportation Network Extent: A Relationship, Model, and Case Study," presented to the Ohio Academy of Science, Marietta, Ohio. April, 1972.

Appendix B

Testimony, Depositions, and Affidavits
Mark J. Salling, PhD, GISP
November 1, 2018

1. Ohio State Conference of the National Association for the Advancement of Colored People, et al., Plaintiffs, v. John Husted, et al., Case No. 2:14-cv-00404 (S.D. Ohio). Research entitled "The Use of Early In-Person Voting Opportunities in the 2008, 2010, and 2012 General Elections In Ohio's Largest Urban Counties: Comparisons by Race and Hispanic/Latino Ancestry", submitted with "Amicus Brief of the County of Cuyahoga, Ohio Supporting Plaintiffs' Motion for Preliminary Injunction". Declaration on October 8, 2014.

2. William D. Gearhart, Jr. v. Nationwide Mutual Insurance Co. , et al., Case No. CV-2012-09-5216, Court of Common Pleas, Summit County, Ohio. Analysis of the distance from two addresses in Cuyahoga Falls, Ohio to an address in Canal Fulton, Ohio. Affidavit on September 19, 2013.

3. Nationwide Mutual Insurance Co. v. Michael T. Grossi, et al., Case No. CV-2012-12-6660, Court of Common Pleas Summit County, Ohio. Analysis of the distance from two addresses in Cuyahoga Falls, Ohio to an address in Canal Fulton, Ohio. Affidavit on October 2, 2013.

4. Fair Elections Ohio v. Husted, Case No. 1:12-cv-797 (S.D. Ohio). Expert for Plaintiffs, including deposition testimony.

5. New Longwood Associates d.b.a. Arbor Park Village v. Nikita Perry, Case No. 2009 CVG 012567, Cleveland Municipal Court, Housing Division, Cuyahoga County, Ohio, Expert Report based on an analysis of Census data on the racial composition of prison population.

6. ACLU of Ohio v. Brunner. Case 1:08-cv-00145 (N.D. Ohio), Expert for Plaintiffs.

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7. Cleveland Metropolitan Housing Authority v. Sylvia Barnes and Mustafa Jefferson,
    Consolidated Cases No. 2007 CV 22831, No. 07-Cvg-022831, No. 07-Cvg-10717
    Cleveland Municipal Court, Housing Division, Cuyahoga County, Ohio. Written
    deposition August 13, 2008.

8. United State of America vs. City of Euclid, et. al. Case No. 1:06-cv-1652. (N.D. Ohio)
    Deposition June 6, 2007.

9. Boustani v. Blackwell, Civil Action No. 06-2065. (N.D. Ohio) Salling report documented
    the number of naturalized citizens in Ohio using data from the Census Bureau.

10. Huntsman v. Akron Tower Partnership, et al. Case No. 5:05CV1739 (N.D. Ohio), Civil
    Rights - Housing/Accommodations.

11. Effie Stewart, et al. v. J. Kenneth Blackwell, et al., No. 5:02-cv-2028 (N.D. Ohio)

12. Cleveland Firefighters for Fair Hiring Practices, et al., v. City of Cleveland, et. al., Case No.
    I:00 CV 301, Case No. C73-330 (N.D. Ohio). Expert witness for the plaintiff; testified
    December 19, 2012.

13. Buckeye Community Hope Foundation v. City of Cuyahoga Falls, No. 5:96-CV-1458 (N.D.
    Ohio)

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Appendix C

Compensation

CSU shall perform the following tasks for this project:

1. Conduct an analysis comparing distance to hospitals versus jails for those jails identified by CLC.
2. Estimate state's eligible prisoners not able to vote based on data on incarcerated prisoners provided by CLC.
3. Provide deposition (if required)
4. Provide in-person testimony (if required)

Costs associated with these tasks are found in Table 1. The total costs are $5,121, as much as $1,925 of which depends on whether tasks 3 and/or 4 are required.

Table 1: Costs by Task

Task/Product	TOTAL COSTS
1. Comparison of distance to hospitals versus jails	$1,459
2. Estimation of state's eligible prisoners not able to vote	$1,737
3. Deposition (if required)	$893
4. In-person testimony	$1,032

Tasks 3 and 4 include estimated hours of travel and a mileage rate to and from Columbus, Ohio. CLC will also compensate CSU for any additional costs for travel expenses that CSU incurs at CLC's request. CLC will compensate CSU for other fees necessarily incurred in the performance of this agreement; however, any such fees must be pre-approved by CLC before they are incurred in order to qualify for payment.

50% of tasks one and two will be invoiced upon execution of this agreement. The balance upon completion of the tasks.